

242/NF/03**We claim:**

1. A process for the preparation of high surface area activated carbon from coconut shell, which comprises cleaning the coconut shells, drying the cleaned coconut shells, crushing the dried coconut shells, sieving the crushed coconut shell through 100-400 mesh to
5 obtain uniform sized coconut shell powder, treating the shell powder with an activating agent, drying the treated coconut shell powder, carbonizing the powder in an inert atmosphere, cooling the activated carbon to the room temperature, removing the excess of activating agent by treating, washing with water bring the powder to neutral pH and drying the activated carbon to obtain the activated carbon.
- 10 2. A process as claimed in claim 1 wherein the activating agent is selected from he the group consisting of 250 mM -2M aqueous solutions of alkali metal hydrides, carbonates, chlorides, sulfides, thiocyanate of transition metals and inorganic acids.
3. A process as claimed in claim 2 wherein the chloride is zinc chloride.
4. A process as claimed in claim 2 wherein the alkali metal hydride is potassium hydroxide.
- 15 5. A process as claimed in claim 1 wherein the inert gas is selected from nitrogen and argon.
6. A process as claimed in claim 1 wherein the carbonization is carried out at a temperature in the range of 300-400 °C for 3-6 h, in an inert atmosphere and using different heating rates ranging from 5-20 °C /min.
7. A process as claimed in claim 1 wherein the activation is carried out in a dynamic flow of
20 inert or oxidizing gas (flow rate 20-200 ml/min) at 500-800 °C for 6-24 h at a heating rate of 5-20 °C/min.
8. A process as claimed in claim 1 wherein the coconut shell is first cleaned mechanically to remove fibrous part therefrom followed by thorough rinsing with distilled water.
9. A process as claimed in claim 1 wherein the cleaned coconut shell is dried at a
25 temperature in the range of 110-150°C for 12-20 h.
10. A process as claimed in claim 1 wherein the crushed coconut shell powder is sieved through 100-400 mesh to obtain uniform sized particles.
11. A process as claimed in claim 1 wherein the treated coconut shell powder is dried at a temperature in the range of 100-200°C for a period of 12-22 h.
- 30 12. A process as claimed in claim 1 wherein the excess activating agent is removed by treating with the dilute hydrochloric acid followed by washing with water.
13. A process as claimed in claim 1 wherein the activated carbon powder obtained has a nitrogen adsorption isotherm at 77 K, a BET surface area of in the range 1500-2000 m²/g with average pore diameter 17-21 Å, layer capacitance in the range of 10-180 F/g.